

COMMISSIONER AUSTIN COMMENTS

From: Erin Austin
To: Larr.Kelly@loudoun.gov
Date: 5/13/2009 4:31 PM
Subject: LOD comments
Attachments: EA Comments to Ordinance.pdf

Hi Larr,

My specific comments to the Ordinance are in the attached PDF. A couple of macro comments:

1. I propose that the LOD apply to "Covered Activities" defined as "all land development applications, subdivisions, improvements requiring a grading or zoning/building permit, and commercial agricultural operations". I think this covers everything we are concerned about and doesn't require us to take a tape measure to victory gardens. AgOps covered by a management plan would still be exempt.
2. RGP Limestone Conglomerate Policy #2 says that performance standards will include "minimum setback distances from sinkholes, rock outcrops and other Karst features". Accordingly, I do not believe that any provision, including exemptions for small structures and existing structures, that permit elimination of the setback are in conformance with the RGP.

Regarding the FSM, I have just a few things:

For each of the types of reports, add to the their "Recommendations" requirements: "In the LOD, recommendations of measures to mitigate potential adverse impacts on surface or groundwater pollution or spring contamination pursuant to Zoning Ordinance Section 4-1908." I think the current recommendations cover subsidence risk well. We need this so the County has a basis for rejecting a report that doesn't address water contamination. Without it, the consultant shrugs his shoulders and says, "Not required in FSM and not in my contract with the developer. If I volunteer recommendations and it costs the client money, I'll never work again."

6.130.A -- New language says that PSR may be limited to areas proposed for development, etc. Add that if the PSR is so limited, then a new PSR shall be required before development can proceed in any areas not covered by a prior PSR.

6.150 -- The last sentence of the first paragraph should read: Geotechnical Studies shall not be required in areas where DEVELOPMENT AND/OR land disturbing activities are not proposed.

6.151 -- Same comment as above for third sentence of first paragraph.

Codified Ordinance 1066.11(h)(1)D. -- Suggest that the word "unsuitable" be deleted in both places. It suggests that there may be a suitable karst feature near a subsurface disposal system. The word "may" is still in there.

For this drafting exercise, are you acting in your capacity as a lawyer or as a planner? If the latter, I'm wondering if it is common practice, in Loudoun and other jurisdictions, for zoning ordinances to be drafted by planners instead of lawyers? On this, I am just curious, don't read anything into the question.

Let me know if you have any questions.

Thanks,
Erin

From R6P, page 5-19,
add first sentence of D.1.

Section 4-1900 Limestone Overlay District

4-1901 Purpose and Intent. A large area just east of the Catoctin Mountain range in the Rural Policy Area of Loudoun County is comprised of limestone and "Karst terrain" areas. The limestone geology of carbonate deposits in Karst terrain areas is dissolved over time by mildly acidic precipitation, creating fissures. The deposits are highly permeable, allowing surface water to pass through quickly to underlying aquifers and groundwater, and possibly to reappear elsewhere as springs. The terrain is also characterized by the presence of certain natural features, such as sinkholes and rock outcrops. Thus, development on Karst terrain has a direct correlation to the potential for ground surface collapse and the susceptibility of groundwater and surface water pollution, and spring contamination, posing serious risks to public health, safety and welfare. The provisions of this Section 4-1900 are intended to regulate land use and development in areas underlain by limestone and in areas with Karst features and Karst terrain in such a manner as to:

- (A) Protect the health, safety and welfare of the public;
- (B) Reduce potential for property damage resulting from subsidence or other earth movement; and
- (C) Protect groundwater and surface water resources from contamination

4-1902 Authority. Authority for these provisions includes:

- (A) Chapter 11, Title 15.2, Code of Virginia (Planning, Subdivision of Land and Zoning).
- (B) Soil Conservation Districts Law, Va. Code Sections 21-2(c), Section 21-2(d).
- (C) Virginia Environmental Quality Act, Va. Code
- (D) Section 10-178.
- (E) Erosion and Sediment Control Act, Va. Code Section 21-89.2.
- (F) Uniform Statewide Building Code and International Building Code Chapter 18.

4-1903 Applicability and Exemptions.

- (A) **Applicability – Land Area Included in the LOD.** This Section 4-1900 shall apply to all land included in the Limestone Overlay District (LOD), as shown on the official Limestone Overlay District Map ("LOD Map"), which, with all explanatory matter thereon, is hereby incorporated by reference. The LOD is established as an overlay district, meaning that this district is overlaid upon other districts and the land so encumbered may be used in a manner permitted in the underlying district only if and to the extent that such use is also permitted in the overlay district. Pursuant to Section 6-407, the Zoning Administrator is charged with making necessary cartographic interpretations of the LOD Map with recommendation and referral from the County Soil Scientist.



- (1) In addition to the LOD Map, the County shall maintain a database ("Karst Feature Database") of the following features within the LOD:

- (a) The known extent of the limestone bedrock formations (Sensitive Limestone Areas);
- (b) Sinkholes, Swallets and Closed Depressions;
- (c) Rock Outcrops;
- (d) Springs;
- (e) Caves.
- (f) Sinkhole Floodplains

(g) Underground Solution Channels

- (2) The Karst Feature Database shall be updated based on information in Geophysical Studies provided by applicants for land disturbing activities and land development applications within the LOD, as required by Section 4-1905, information identified in Preliminary Soils Reports as required by the Facilities Standards Manual, Revised United States Geologic Survey (USGS) Geological Mapping updates, and information provided through field inspections

- (B) **Applicability – Covered Activities.** This Section shall apply to all ~~proposed~~ land development applications, including all Zoning Map Amendments, Special Exception applications and Commission Permit applications, as well as all land disturbing activities, including non-agricultural rural economy uses, new

DRAFT 3/19/09

Exempt Ag for home consumption
from Farm Management &
Nutrient Plan

("Covered Activities")

single-family development, preliminary subdivisions, family subdivisions, preliminary/record subdivisions, site plans, grading permits, construction plans and profiles, and zoning/building permits that occur within the LOD

Excluded from
Covered Activities

(C) ~~Exemptions~~. The following land disturbing activities shall be allowed within the LOD, subject to the specific limits set forth below:

- (1) Agricultural Operations. This section shall not apply to agricultural operations located in the LOD that are covered by a Conservation Farm Management Plan approved by the Loudoun County Soil and Water Conservation District or the U.S. Natural Resources and Conservation Service that includes best management practices, and a Nutrient Management Plan. Structures associated with agricultural operations are not exempt from these provisions. For purposes of this section, the term "structure" shall include, but not be limited to, all buildings, water/dam embankments, retaining walls, field/tile drainage, road construction and cut or fill operations.

4-1900

What affect
would recent BZA
ruling have on
this provision?

150 sq ft exemption
should not apply to
structures whose purpose
is to change
water flow

- (2) Existing Structures within LOD. Expansion, alteration, or reconstruction of legally existing buildings, structures, and impervious surface areas existing on [action date] shall not be covered, provided that such alteration does not increase the total footprint of a structure or impervious surface by more than twenty-five percent (25%) or 2,000 square feet, whichever is greater.

less

this is
limitless.
there must
be some
limitations,
such as
maximum
set backs

4-1904 Review Procedures.

- (A) All land disturbing activities, including non-agricultural rural economy uses, new single-family development, preliminary subdivisions, family subdivisions, preliminary/record subdivisions, site plans, grading permits, construction plans and profiles, and zoning/building permits in the LOD shall be governed by procedures in Chapter 8 of the Facilities Standards Manual (FSM)

What does
this add?

- (B) All applications for Zoning Map Amendments, Special Exceptions and Commission Permits shall be required to submit, in addition to the material required under the

All exempt activities
should still be required
to maintain 50' set back from Sinkholes, Springs & Cave opening.

provisions of Article 6 for each respective application type, the following material:

- (1) Existing Conditions Map, prepared at a scale of 1 inch = 200 feet and including planimetric detail with five foot contour intervals. This map shall include the location of existing wells, drainfields, fill sites, faults (as shown on United States Geologic Survey Maps), and Karst/Sensitive Environmental Features shown on the Karst Feature Database within 100 feet of the property boundary.
- (2) Concept Plan of proposed development including proposed roads, lot lines, buildings, wells, drainfield locations and limits of clearing, grading and other land disturbing activity.
- (3) Preliminary Soils Review

4-1905 Establishment of Karst/Sensitive Environmental Features

- (A) **Karst/Sensitive Environmental Features Associated with Limestone Bedrock.** For all ~~land development applications and land disturbing activities, as specified in Section 4-1903(B), involving properties subject to LOD, as identified on the LOD Map,~~ the applicant shall submit a Geophysical Study, pursuant to the requirements of Chapter 6 of the PSM. The Geophysical Study shall identify the following Karst/Sensitive Environmental Features associated with limestone bedrock:

- (1) Sinkholes, Swallets, or Closed depressions;
- (2) Rock outcrops
- (3) Underground solution channels;
- (4) Cave openings
- (5) Springs

Based on the proposed development and the findings of the Geophysical Study, it may be necessary to verify any of the above conditions with a Geotechnical Report, as determined by the Zoning Administrator or their designee. All Karst/Sensitive

Reconcile w/ Geotechnical
4 Review + Checklist #4

Covered Activities

Add
From 2003

84-1905

Environmental Features identified in the Geophysical Study, ~~other than Underground Solution Channels, shall be added to the County's Karst Feature Database.~~

- (B) **Karst/Sensitive Environmental Feature Setback.** For each Karst/Sensitive Environmental Feature identified in the County's Karst Feature Database, the required Geophysical Study, or Preliminary Soils Report as required by the Facilities Standards Manual, a setback shall be established from the outermost edge of each such feature. All such features must be identified on the land development application and must have a minimum setback of fifty (50) feet, except for the following:

- (1) One hundred (100) feet ^{minimum} from the rim of any sinkhole, swallow or closed depression; and
- (2) One hundred (100) feet ^{minimum} from any cave opening ^{or Spring.}

The setback may be ⁽¹⁾reduced by 50% if the Geophysical Study concludes that the risks of collapse and groundwater contamination are not a concern for the proposed location and use, y

4-1906 Permitted Uses and Activities

- (A) **Uses and Activities within Karst/Sensitive Environmental Feature Setback.**

- (1) Land disturbing activities, development, and impervious surface coverage are prohibited within Karst/Sensitive Environmental Feature Setbacks except for the following:
 - (a) Fences that do not obstruct surface water flow;
 - (b) Trails and other passive recreation facilities, excluding buildings, for pedestrian, bike or other non-motorized use, provided that such facility is designed with permeable materials and is located a minimum of 25 feet from the edge of each Karst/Sensitive Environmental Feature; and
 - (c) Restoration and vegetation.

or (2) increased to the extent necessary so that the risks of collapse and groundwater contamination are not a concern

primary only; no
accessory dwellings

Add last
sentence from
2003 4-1903(c)(2)

- (2) Residential structures shall be located outside Karst/Sensitive Environmental Feature Setbacks (as set forth in Section 4-1905(B) ~~or as may be reduced pursuant to the provisions of that section~~), except on lots existing on [action date] where there are no feasible development sites available outside of the setback. In such cases, a Geophysical Study must be submitted for the proposed structure, any recommendations of the Geophysical Study must be followed and any residential structures located within a Karst/Sensitive Environmental Feature Setback shall be sited on the lot so as to be located as far from the Karst/Sensitive Environmental Feature as is feasible. No structures for uses other than residential use shall be permitted to locate within the Karst/Sensitive Environmental Feature Setback. Y

beotech?

Isn't a Geophys
always required?

Need minimum setback

Add fully-loaded
warning for
structures built
inside Setback.
At minimum,
add notice that
structure is
built inside
Setback.

- (B) **Uses and Activities in the Limestone Overlay District, Outside Karst/Sensitive Environmental Feature Setback.** Except as provided in Section 4-1906(E) all uses and structures permitted by right in the underlying zoning district are permitted within the Limestone Overlay District outside of Karst/Sensitive Environmental Feature Setback, subject to standards and mitigation measures required pursuant to this section of the Zoning Ordinance

- (C) **Special Exception Uses.** Except as provided in Section 4-1906(E), all uses and structures permitted by special exception in the underlying zoning district may be permitted subject to the procedures and criteria stated in Section 6-1300, "Special Exception" of the Zoning Ordinance, Section 4-1904(B), above, and to conditions identified in such special exception and to any mitigation measures required according to Section 4-1908, below.

- (D) **Creation of New Lots.** Any lot created after [action date] shall demonstrate that there is a sufficient area (to include sewage disposal and well sites, where applicable) outside of the Karst/Sensitive Environmental Feature Setbacks, identified in Section 4-1905(B), for the intended use.

- (E) **Prohibition of Specific Pollution Sources.** The following uses shall be prohibited within the LOD:

Shouldn't
demonstration
happen before,
not after,
a new lot is

created? What happens to lot if can't get HD permit?

- (1) Uses and activities involving hazardous substances;
- (2) Automobile Service Stations, Gas Pumps accessory to Convenience Food Store, or Motor Vehicle service and repair
- (3) Underground Storage Tanks, except for propane tanks shown on an approved Geophysical Study,
- (4) Landfills and waste sites;

what about above ground storage tanks for gasoline or heating oil?

Are there any by-right uses of hazardous substances? If yes, how does this get flagged if no SPB?

Covered Activities

4-1907 Development Standards for the LOD. Unless otherwise exempt by Section 4-1903(C) above, all ~~uses permitted by right or special exception and all land disturbing activities in the LOD~~ shall adhere to the following development standards:

- (A) **Structures in Potential Subsidence Areas.** No structure shall be built in an area where a Geophysical Study indicates that potential subsidence may occur that would cause physical injury or harm to the public or future residents unless there are no alternative locations within a given parcel, and a subsequent Geotechnical Report indicates that such potential harm can be mitigated. In such cases the structures must be constructed in accord with the mitigation techniques recommended by the Geotechnical Report.

what is the appropriate level of "mitigation" for risk of physical injury or harm to public?

property damage,

- (B) **Site Grading.** A grading permit is required for all land disturbing activities. Site grading, including any fill or berm placement, shall maintain natural drainage patterns. Berms and filling operations shall require a Geophysical Study.

what if no grading is required?

in both quantity & quality water

If no other alternative exists than to impact natural drainage patterns, then drainage shall be designed to avoid damage to Karst/Sensitive Environmental Features as identified in the required Geophysical Study and in any subsequently required Geotechnical Report.

- (C) **Surface Water Run-Off.**

by mimicking pre-development volumes in both quantity and quality.

- (1) **Non-point source pollution load** of surface runoff that is naturally conveyed to a sinkhole or closed depression shall meet the stormwater quantity or quality standards specified in Chapter 5 of the Facilities Standards Manual. In addition, the runoff shall travel over

what is this?

to mimic pre-development volumes
in both quantity and quality

vegetative filters or other filtration measures, as
established in the Virginia Stormwater Management
Handbook, prior to entering such features

ADD:

- (1) Limits on clearing.
- (2) Limits on impervious surface.

- (2) Surface water runoff shall not be redirected or concentrated to enter a sinkhole, swallet or closed depression.

for cave opening

- (D) **Revegetation.** Total lawn area on a lot shall be limited to one ~~acre~~. Disturbed areas in excess of one ~~acre~~ not covered by paving, stone, or other solid materials shall be revegetated with native plant species that are compatible with the natural vegetation and tree cover and that have low water and nutrient requirements.

or non-invasive

- (E) **Wells.** Wells shall be installed in accordance with the provisions of Chapter 1040 of the Loudoun County Codified Ordinance, the Virginia Department of Health Private Well Regulations and the Virginia Department of Health Waterworks Regulations and Chapter 6 of the Facilities Standards Manual, relating to "Subdivisions with Communal Water Systems". Communal Water Supply Systems shall be required for all subdivisions of eight (8) or more lots approved after [action date].

- (F) **On-Site Sewage Disposal Systems.** On-site sewage disposal systems, as defined in the Land Subdivision Development Ordinance, are allowed in the LOD for individual lots and subdivisions with fewer than eight (8) lots. Sewage disposal systems shall be subject to the review processes and requirements in the LSDO (Section 1245.10) and shall comply with requirements of the Virginia Department of Health - Division of Sewage and Water Services, and the Loudoun County Health Department.

Within the LOD, in areas that the Director of the Loudoun County Health Department deems appropriate for sewage disposal systems, the applicant shall only use a sewage disposal system that meets the requirements in Chapter 1066 of the Loudoun County Codified Ordinances

- (G) **Communal Wastewater Systems.** Proposed subdivisions containing eight (8) or more lots shall be served by communal wastewater systems, unless the applicant demonstrates to the County that other types of systems are available that will

* If no county-wide requirement for bonding alternative systems, apply to LOD.

achieve the same or superior treatment results. The County shall allow communal wastewater systems in the LOD subject to the following standards:

that area will be used before any area within the KSEF Setback

(1) Where sufficient area exists on the portion of the property outside of the Karst/Sensitive Environmental Feature Setback to accommodate a proposed communal wastewater disposal system, or

(2) Where insufficient buildable land area exists outside of the Karst/Sensitive Environmental Feature Setback, as much of the proposed communal wastewater disposal system shall be sited outside the Karst/Sensitive Environmental Feature Setback/Buffer as possible and the applicant shall demonstrate through a Geophysical Report and Detailed Soils Site Investigation Report acceptable to the County that the communal wastewater disposal system will minimize run-off generated, enhance filtration, and will not have an adverse environmental impact on underlying aquifers and groundwater. In addition, the applicant shall provide a plan for regular operation and maintenance.

what happens to the plan? part of plat?

(3) All Communal Wastewater Systems shall be capable of producing secondary effluent, or better, as identified in the Sewage Handling and Disposal Regulations of Virginia

defined?

KSEF

(H) **Protection of Springs.** Land disturbing activities, development, and impervious surface coverage are prohibited within 1) one hundred (100) feet from a spring, measured from the first emergence of the spring or 2) two hundred (200) feet when the first emergence of the spring is on a slope greater than 15% and is downslope from the land disturbing activities, development or impervious surface coverage.

(I) **Forestry and Silviculture.** Forestry and Silviculture may be conducted only in conformance with a Forest Management Plan that is in accord with requirements in the Facilities Standards Manual and approved by both the Virginia Division of Forestry and the County.

(J) **Stormwater Management Facilities and Best Management Practice Facilities (BMPs).**

(2) Any land disturbing activity shall provide and maintain a permanent vegetative buffer in all KSEF Setbacks; and
(3) Do not apply any fertilizer, pesticide or other chemical in setbacks

- (1) Stormwater management ponds and BMP facilities shall not be located within Karst/Sensitive Environmental Feature Setbacks.
- (2) Stormwater management ponds and BMPs constructed within the LOD shall require a Geophysical Study, and all stormwater management ponds shall be lined with impervious materials to prevent groundwater pollution, in accordance with Chapter 5 of the Facilities Standards Manual
- (K) **Nutrient and Pest Management Recommendations.** Use of household lawn fertilizers and/or pesticides for residential purposes shall be limited due to the potential for groundwater contamination. Application of fertilizers and lime is allowed within the Limestone Overlay District but should only be applied based on results of a soil test, obtained through Virginia Cooperative Extension Service (VCES) or other County approved laboratory, and nutrient and pest management recommendations. Prior to the use of any household lawn fertilizers, and/or pesticides, a landowner shall obtain Nutrient and Pest Management Recommendations from VCES or other County approved laboratory. A note to such effect shall be placed on all approved site plans and record subdivisions within LOD.
- (L) **Explosives and Blasting.** Blasting within LOD shall require conformance to Section 6.155 of the FSM
- (M) **Warnings to Property Owners.** A note containing the following or similar language shall be placed on any record subdivision plat for land in the LOD: "Property and structures within the Limestone Overlay District are subject to hazards and considerations due to the underlying geology of this area. In this area, there is the potential for subsidence, which may result in damage to structures or property. Additional private insurance is recommended specifically addressing the hazards of this unique area." In addition, maintenance of sewage disposal systems must be done according to the Department of Health requirements established pursuant to Chapter 1066 of the Loudoun County Codified Ordinances to help prevent potential groundwater contamination, and a note to this effect shall be placed on all approved site plans and record subdivisions.

add anywhere:

- (ii) This Section 4-1900 shall not create any liability on the part of the County or any officer or employee thereof for any damages that result from reliance on this Ordinance or any administrative decision lawfully made hereunder.

- (c) Use of xeriscape (i.e., use of native plant materials and landscape materials that have lower water and nutrient requirements).

- (4) **Storage Tank Testing and Containment.** The County ~~may~~ require leak testing and secondary containment for underground and/or above ground storage tanks.

- (5) **Conservation of Indigenous Vegetation.** The County ~~may~~ require retention of indigenous vegetation to the maximum extent feasible, and in accordance with Tree Conservation Standards in Chapter 7 of the Facilities Standards Manual.

- (6) **Groundwater ^{Protection} Monitoring.** The County may require the applicant to establish a regular system of groundwater monitoring by a qualified professional for the proposed development.

- (7) **Conservation Easements.** Conservation easements that permanently conserve and protect sensitive limestone area dedicated to the County (with its written consent) when such easement is agreed upon by the County and landowner

- (8) **Prohibition of Additional Specific Pollution Sources.** The County may prohibit specific pollution sources, as defined in Chapter 5 of the Facilities Standards Manual as "stormwater hotspots", and other uses and activities with high risk of releasing pollutants, if the applicant does not propose effective mitigation measures acceptable to the County, provide evidence that pollution sources will be monitored, and that facility design standards will be followed.

New Section 6-407(A)(4)

6-407

Map Interpretations and Boundary Determination

- (A) The environmental overlay districts and steep slope maps are intended to show the location of environmental resources in the County, including the following:

- (4) Limestone Overlay District; described in Section 4-1900